

## CLAIMS:

1. An object detection system characterized by comprising:  
radar detection means (2) that detects an object using a radar,  
image detection means (3) that detects an object using an image, and  
5 collating means (4) that performs collation between a detection result of the radar  
detection means (2) and a detection result of the image detection means (3) so as to determine  
whether an identical object is detected by the radar detection means (2) and the image detection  
means (3); the object detection system being characterized in that the collating means (4)  
performs a first collation between an object detected by the radar detection means (2) in a  
10 present collation and an object that has been determined as being detected by the radar  
detection means (2) and the image detection means (3) in a previous collation; performs a  
second collation between an object detected by the image detection means (3) in a present  
collation and an object that has been determined as being detected by the radar detection means  
(2) and the image detection means (3) in the previous collation when it is determined that the  
15 identical object is detected by the radar detection means (2) and the image detection means (3)  
in the previous collation; and determines whether the radar detection means (2) and the image  
detection means (3) detect the identical object based on the first and the second collations.
2. The object detection system according to claim 1, characterized in that the collating  
20 means (4) performs a collation between objects detected by the radar detection means (2) in the  
present detection, which are obtained by excluding the object determined as have been detected  
by the radar detection means (2) and the image detection means (3), and objects detected by the  
image detection means (3) in the present detection, which are obtained by excluding the object  
determined as have been detected by the radar detection means (2) and the image detection  
25 means (3) such that it is determined whether the identical object is detected by the radar  
detection means (2) and the image detection means (3).
3. The object detection system according to claim 1 or 2, characterized in that the radar  
detection means (2) comprises at least one of a millimeter-wave radar and a laser radar.

4. The object detection system according to any one of claims 1 to 3, characterized in that the image detection means (3) comprises a stereo camera.

5 5. A method of detecting an object in a system (1) including radar detection means (2) that detects an object using a radar, image detection means (3) that detects an object using an image, and collating means (4) that performs collation between a detection result of the radar detection means (2) and a detection result of the image detection means (3) so as to determine whether an identical object is detected by the radar detection means (2) and the image detection means (3), the method being characterized by comprising the steps of:

performing a first collation (S10, S11) between an object detected by the radar detection means (2) in a present collation and an object that has been determined as being detected by the radar detection means (2) and the image detection means (3) in a previous collation;

15 performing a second collation (S12, S13) between an object detected by the image detection means (3) in a present collation and an object that has been determined as being detected by the radar detection means (2) and the image detection means (3) in the previous collation when it is determined that the identical object is detected by the radar detection means (2) and the image detection means (3) in the previous collation; and

20 determining whether the radar detection means (2) and the image detection means (3) detect the identical object based on the first and the second collations (S14).

6. The method according to claim 5, characterized by further comprising the step of performing a collation between objects detected by the radar detection means (2) in the present detection, which are obtained by excluding the object determined as have been detected by the radar detection means (2) and the image detection means (3), and objects detected by the image detection means (3) in the present detection, which are obtained by excluding the object determined as have been detected by the radar detection means (2) and the image detection

means (3) such that it is determined whether the identical object is detected by the radar detection means (2) and the image detection means (S20 to S25).

7. The method according to claim 5 or 6, characterized in that the radar detection  
5 means (2) comprises at least one of a millimeter-wave radar and a laser radar.

8. The method according to any one of claims 5 to 7, characterized in that the image detection means (3) comprises a stereo camera.

10 9. An object detection system comprising:  
a radar detection unit (2) that detects an object using a radar;  
an image detection unit (3) that detects an object using an image; and  
a collating unit (4) that performs collation between a detection result of the radar  
detection unit (2) and a detection result of the image detection unit (3) so as to determine  
15 whether an identical object is detected by the radar detection unit (2) and the image detection  
unit (3), wherein the collating unit (4) performs a first collation between an object detected by  
the radar detection unit (2) in a present collation and an object that has been determined as  
being detected by the radar detection unit (2) and the image detection unit (3) in a previous  
collation, performs a second collation between an object detected by the image detection unit  
20 (3) in a present collation and an object that has been determined as being detected by the radar  
detection unit (2) and the image detection unit (3) in the previous collation when it is  
determined that the identical object is detected by the radar detection unit (2) and the image  
detection unit (3) in the previous collation, and determines whether the radar detection unit (2)  
and the image detection unit (3) detect the identical object based on the first and the second  
25 collations.

10. The object detection system according to claim 9, wherein the collating unit (4)  
performs a collation between objects detected by the radar detection unit (2) in the present  
detection, which are obtained by excluding the object determined as have been detected by the

radar detection unit (2) and the image detection unit (3), and objects detected by the image detection unit (3) in the present detection, which are obtained by excluding the object determined as have been detected by the radar detection unit (2) and the image detection unit (3) such that it is determined whether the identical object is detected by the radar detection unit (2) and the image detection unit (3).

11. The object detection system according to claim 9 or 10, wherein the radar detection unit (2) comprises at least one of a millimeter-wave radar and a laser radar.

12. The object detection system according to any one of claims 9 to 11, wherein the image detection unit (3) comprises a stereo camera.

13. A method of detecting an object in an object detection system including a radar detection unit (2) that detects an object using a radar, an image detection unit (3) that detects an object using an image, and a collating unit (4) that performs collation between a detection result of the radar detection unit (2) and a detection result of the image detection unit (3) so as to determine whether an identical object is detected by the radar detection unit (2) and the image detection unit (3), the method comprising the steps of:

performing a first collation (S10, S11) between an object detected by the radar detection unit (2) in a present collation and an object that has been determined as being detected by the radar detection unit (2) and the image detection unit (3) in a previous collation;

performing a second collation (S12, S13) between an object detected by the image detection unit (3) in a present collation and an object that has been determined as being detected by the radar detection unit (2) and the image detection unit (3) in the previous collation when it is determined that the identical object is detected by the radar detection unit (2) and the image detection unit (3) in the previous collation; and

determining whether the radar detection unit (2) and the image detection unit (3) detect the identical object based on the first and the second collations.

14. The method according to claim 13, further comprising the step of performing a collation between objects detected by the radar detection unit (2) in the present detection, which are obtained by excluding the object determined as have been detected by the radar detection unit (2) and the image detection unit (3), and objects detected by the image detection unit (3) in the present detection, which are obtained by excluding the object determined as have been detected by the radar detection unit (2) and the image detection unit (3) such that it is determined whether the identical object is detected by the radar detection unit (2) and the image detection unit (S20 to S25).
- 10 15. The method according to claim 13 or 14, wherein the radar detection unit (2) comprises at least one of a millimeter-wave radar and a laser radar.
16. The method according to any one of claims 13 to 15, wherein the image detection unit (3) comprises a stereo camera.